Quinolone Resistance among Non-Typhi *Salmonella* and *E. coli* O157:H7 - NARMS, 1996-2001

Stevenson J, Nelson J, Joyce K, Omondi M, Angulo F, and the NARMS Working Group

Fluoroquinolones are commonly used to treat *Salmonella* infections in adults as well as to treat *Escherichia coli* infections in poultry (since 1996), *Salmonella* and other infections in cattle (since 1999), and a variety of infections in companion animals. Among *Salmonella* and *E. coli* , a single mutation in the quinolone-resistance determining region may confer quinolone (e.g., nalidixic acid) resistance and decreased susceptibility to fluoroquinolones (e.g., ciprofloxacin) and, among human *Salmonella* infections, has been associated with treatment failures. Quinolone-resistant *E. coli* O157 infections have not been reported in the U.S.

Since 1996, public health laboratories in participating NARMS sites forwarded every tenth non-Typhi *Salmonella* and every fifth *E. coli* O157:H7 isolate to CDC for antimicrobial susceptibility testing to nalidixic acid and ciprofloxacin using broth microdilution.

From 1996-2001, 123 (1%) of 8,382 non-Typhi *Salmonella* and 7 (0.4%) of 1,656 *E. coli* O157:H7 isolates were resistant to nalidixic acid (MIC = 32µg/ml). The seven nalidixic acid-resistant *E. coli* O157:H7 isolates were isolated in 1999 (N=2), 2000 (N=2), and 2001 (N=3). Ten non-Typhi *Salmonella* isolates were ciprofloxacin-resistant (MIC = 4µg/ml). No *E. coli* O157 isolates were ciprofloxacin-resistant.

Quinolone resistance is evident among *Salmonella* and *E. coli* O157:H7. Additional studies should examine the origin of these resistant strains and monitor changes in their frequencies.